KEY_Lesson05_Indexing

December 10, 2021

1 Indexing

To get values from a list, you use **indexing**.

To index a list, you use square brackets (`[]`) with a number (or numbers) in the brackets specifying which elements of the list you want.

Let's start with a list of fruit:

```
[1]: # command Python to make a list and store it fruit
     fruit = ['apple', 'banana', 'grape', 'mango']

     # command Python to get the length of your list
     len(fruit)
```

```
[1]: 4
```

Let's try getting the first element in the list:

```
[2]: # command Python to print one element of your list
     print(fruit[1])
```

```
banana
```

Is this what you expected? If not, you're not alone. The trick is that Python starts counting at zero!

Here's how you actually print the first element of the list:

```
[3]: # command Python to print the first element of your list
     print(fruit[0])
```

```
apple
```

How do you think we can print the element mango in the list?

```
[4]: # command Python to print the element mango (2 ways)
     print(fruit[3])
     print(fruit[-1])
```

```
mango
mango
```

We can also get more than one element of a list:

```
[5]: # command Python to get the first 3 elements of the list and save it to␣
     ↪fruit_subset
     fruit_subset = fruit[0:3]

     # command Python to print the length of fruit_subset
     print(len(fruit_subset))
```

```
3
```

```
[6]: # command Python to print fruit_subset
     print(fruit_subset)
```

```
['apple', 'banana', 'grape']
```

Note that in Python, the first number in indexing is *inclusive* and the second number is *exclusive*. In other words, you get the element corresponding to the first number (0), but not the element corresponding to the last number (3). This is like (0,3] in math.

Let's print the second and third elements of the list:

```
[7]: # command Python to get the 2nd and 3rd elements of the list
     print(fruit[1:3])
```

```
['banana', 'grape']
```

Now let's get the second and fourth elment from the list:

```
[8]: # command Python to print the second and fourth elements from the list
     print([fruit[1],fruit[3]])
```

```
['banana', 'mango']
```

You can also get letters in a string by indexing!

```
[9]: # command Python to store the first element of fruit (apple) in the variable a
     a = fruit[0]
     # command Python to print the first 3 letters in apple
     print(a[0:3])
```

```
app
```

You just learned how to: * Get an element from a list or string * Get multiple elements from a list or string

Now it's time to practice what you learned!